



Your ref : MRB.P53314GB  
Application No: GB0426814.0  
Applicant : National Institute of Advanced  
Industrial Science and Technology  
Latest date for reply: 11 July 2005

Examiner : Peter Easterfield  
Tel : 01633 813695  
Date of report : 10 March 2005

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**Patents Act 1977**  
**Examination Report under Section 18(3)**

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MAR. 29. 2005  
HARA KENZO PATENT

**Basis of the examination**

1. I have examined your application in the form that it was printed by WIPO when it was in the international phase.

**Plurality of invention**

2. Your claims define a number of separate inventions not forming a single inventive concept. The inventions are:

(i) the piezoelectric element of claim 1 and the manufacturing method of claim 8,  
(ii) the piezoelectric element of claim 3 and the manufacturing method of claim 11,  
(iii) the piezoelectric element of claim 5 and the manufacturing method of claim 14, and  
(iv) the piezoelectric element of claim 17

3. I believe that the claims define four separate inventive concepts because the matter common to the independent claims is known. I am taking that common matter to be a piezoelectric element using an aluminium nitride thin film, the aluminium nitride thin film having a rocking curve full width half maximum (RCFWHM) not exceeding 2.5°. Such an element can be seen in EP 1124269 discussed below.

4. You will need to amend your claims, so that they relate to only one invention or inventive concept. You will also need to make consequential amendments to the description.

**Novelty**

5. The invention as defined in claim 17 is not new because it has already been disclosed in the following document:

EP 1124269 A2 (LUCENT)

6. This document discloses a piezoelectric bulk acoustic wave device comprising a substrate (110, fig 1) bearing a bottom electrode (135), a top electrode (130) and a piezoelectric layer (120) sandwiched between the two electrodes. The piezoelectric layer is



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**[Examination Report contd.]**

composed of aluminium nitride and the aluminium nitride has a rocking curve full width half maximum preferably less than 2.5° (see paragraphs [0010] to [0013]). It follows that claim 17 is not novel.